REMARKS:

Claims 15 to 52, 54 and 55 are in the application. Claim 53 has been cancelled, and claims 15, 23, 39 and 52 have been amended. Claims 15, 23, 31, 39, 47 to 52, 54 and 55 are the independent claims herein. Reconsideration and further examination are respectfully requested.

Allowable Subject Matter

Initially, Applicants thank the Examiner for the indication that claims 39 to 47, 54 and 55 are allowed.

Regarding claim 39, Applicants' representative inadvertently made an unmarked amendment in the previous response in this case. In particular, Applicants' representative changed "maximizing a rate at which said network objects can be written to said mass storage" to "minimizing a rate at which said network objects can be written to said mass storage." In this response, Applicants' representative has reversed this change. This correction is not believed to impact adversely the allowability of the claim, and a repeated indication of the allowability of claim 39 is respectfully requested.

Rejection Under § 112, ¶ 2

Claim 15 was rejected under 35 U.S.C. § 112, ¶ 2. Applicants have deleted the rejected language from the claim. Withdrawal of this rejection is therefore requested.

Rejections Under § 102(e)

Claims 15 to 22, 31 to 38, 52 and 53 were rejected under 35 U.S.C. § 102(e) over U.S. Patent No. 5,852,717 (Bhide).

Claims 15 to 22: Applicants have amended claim 15. As amended, claim 15 recites a method including steps of receiving a set of network objects in response to a first request to a server from a client, and maintaining the network objects in a cache memory in a cache engine. The cache engine is connected via a network to the server and the client, and the cache memory includes mass storage. According to amended claim 15, the step of maintaining includes steps of recording the network objects in the cache memory and retrieving the network objects from the cache memory, so as to substantially minimizes a time required for retrieving the network objects from the mass storage.

The applied Bhide reference is not believed to disclose or to suggest the foregoing features of claim 15, at least with respect to a step of maintaining that includes steps of recording the network objects in the cache memory and retrieving the network objects from the cache memory, so as to substantially minimizes a time required for retrieving the network objects from the mass storage.

In more detail, Bhide is concerned with increasing performance of computer networks by reducing the latency a client experiences between sending a request to a server and receiving a response. However, according to Applicants' understanding, Bhide does not minimize a time for actual retrieval of objects from mass storage of a cache engine as recited by claim 15. Rather, Bhide is concerned with other aspects and techniques for caching and

decreasing latency, such as maintaining a connection cache, maintaining a cache of information, and use of a "client hook" to intercept requests. Thus, amended claim 15 is believed to be allowable over Bhide.

Claims 16 to 22 depend directly or indirectly from claim 15. Accordingly, those claims also are believed to be allowable over the applied art.

Claims 31 to38: The rejection of these claims is respectfully traversed. Claim 31 recites a method including steps of receiving a set of network objects in response to a first request to a server from a client, and maintaining the network objects in a cache memory in a cache engine. The cache engine is connected via a network to the server and the client, and the cache memory includes mass storage. According to claim 31, the step of maintaining includes steps of determining when and where on the mass storage to record the network objects so as to improve efficiency of maintaining or serving the network objects.

In this regard, the Office Action stated that Bhide taught "wherein said step of maintaining includes steps of determining when and where to record (send or receive or store) said network objects, in response to a measure of efficiency." However, Applicants point out that claim 31 requires determining when and where on mass storage of a cache engine to the record network objects.

After careful review, Applicants do not see any part of Bhide to discuss when and where on the actual mass storage to record objects. Thus, claim 31 is believed to be allowable over Bhide.

Claims 32 to 38 depend directly or indirectly from claim 31. Accordingly, those claims also are believed to be allowable over the applied art.

Claim 52: Applicants have amended claim 52. As amended, claim 52 recites a method including steps of receiving a set of network objects in response to a first request to a server from a client, and maintaining the network objects in a cache memory in a cache engine. The cache engine is connected via a network to the server and the client, and the cache memory includes mass storage. According to amended claim 52, the mass storage of the cache memory utilizes non-hierarchical storage.

The applied Bhide reference is not believed to disclose or to suggest the foregoing features of claim 52, at least with respect to mass storage of a cache memory utilizing non-hierarchical storage.

In this regard, the Office Action stated that a "cache memory utilizing non-hierarchical storage is inherent." Even if true, this still would not anticipate claim 52, which as amended now requires that mass storage of the cache memory utilize non-hierarchical storage. In Applicants' opinion, this feature clearly is not inherent.

As set forth at M.P.E.P. § 2112, inherency may only be relied upon when "the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). Use of non-hierarchical mass storage is not seen to flow necessarily from the teachings of the prior art. For example, conventional mass storage, whether or not used in a cache, is typically arranged hierarchically.

For at least the foregoing reasons, the rejection based on inherency is not believed to be proper with respect to amended claim 52, and this claim is believed to be allowable over the applied art.

Claim 53: This claim has been cancelled, thereby rending the rejection of the claim moot.

Rejections Under § 103(a)

Claims 23 to 30: These claims were rejected under 35 U.S.C. § 103(a) over Bhide in view of U.S. Patent No. 5,822,757 (Chi). Applicants have amended claim 23.

As amended, claim 23 recites a method including steps of receiving a set of network objects in response to a first request to a server from a client, and maintaining the network objects in a cache memory in a cache engine. The cache engine is connected via a network to the server and the client, and the cache memory includes mass storage. According to amended claim 23, the step of maintaining includes steps of optimizing when and where the network objects are written on the mass storage so as to minimize a time required for retrieving the network objects from the mass storage.

The applied art, alone or in combination, is not seen to disclose or to suggest the foregoing features of claim 23, at least with respect to optimizing when and where network objects are written on mass storage so as to minimize a time required for retrieving the network objects from the mass storage.

Applicants do not see any part of Bhide to discuss when and where on the actual mass storage to write objects so as to minimize a time required for retrieving the network objects from the mass storage.

Turning to Chi, this reference discusses a system using a multi buffer data cache. The cache comprises an S-buffer for storing operands with strong temporal locality and a P-buffer for storing operands with strong spatial locality. However, using these buffers is not seen to correspond to optimizing when and where to write network objects on mass storage so as to optimize retrieval from that mass storage, are recited by claim 23. Accordingly, claim 23 is believed to be allowable over Bhide and Chi.

Claims 24 to 30 depend directly or indirectly from claim 23. Accordingly, those claims also are believed to be allowable over the applied art.

Claims 48 to 51: These claims were rejected under 35 U.S.C. § 103(a) over Bhide in view of U.S. Patent No. 6,009,466 (Axberg). This rejection is respectfully traversed.

Each of claims 48 to 51 recites receiving a set of network objects in response to a first request to a server from a client, and maintaining the network objects in a cache memory in a cache engine, the cache engine connected via a network to the server and the client, and the cache memory including mass storage.

Claim 48 further recites that the step of maintaining includes steps of selecting a group of more than one the network objects to be written to the mass storage collectively, and writing the group of network objects to the mass storage in one or more write episodes.

Claim 49 further recites that the step of maintaining includes steps of writing a group of network objects to the mass storage in one or more write episodes, such that efficiency of maintaining or serving the network objects is improved.

Claim 50 further recites that the step of maintaining includes steps of selecting a group of more than one of the network objects to be deleted from the mass storage collectively, and deleting the group of network objects to the mass storage in one or more delete episodes.

Claim 51 further recites that the step of maintaining includes steps of deleting a group of network objects from the mass storage in one or more delete episodes, such that efficiency of maintaining or serving the network objects is improved.

Thus, each of claims 48 to 51 concerns operations on a group of network objects written or deleted from mass storage of a cache memory.

The Office Action acknowledged that Bhide did not teach these operations on a group of network objects. The Office Action relied on Axberg for teaching these features.

Axberg discloses a network configuration program for assisting a user in planning a configuration of devices in an information processing network. Axberg at column 7, lines 51 to 67, discusses use of a management set of objects capable of being manipulated and configured by a storage management program. These objects in the management set can correspond to networks, hosts, physical disks, etc.

As correctly noted in the Office Action, Axberg does teach selecting a group of one or more of the objects and writing (save)/deleting the objects. However, Applicants do not see these operations to be concerned with maintaining a cache memory, but rather with

management and configuration of a network. Furthermore, Applicants see nothing in Bhide or Axberg to suggest somehow transforming Axberg's objects that are used for network configuration into the claimed cached network objects.

For at least the foregoing reasons, claims 48 to 51 are believed to be allowable over Bhide and Axberg.

Closing

In view of the foregoing amendments and remarks, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicants' undersigned attorney can be reached at (614) 486-3585. All correspondence should continue to be directed to the address indicated below.

Respectfully submitted,

Dane C. Butzer

Dated: August 18, 2001

Dane C. Butzer
Reg. No. 43,521

The Swernofsky Law Group
P.O. Box 390013
Mountain View, CA 94039-0013
(650) 947-0700

Changes to Claims

Pursuant to 37 C.F.R. § 1.121(c)(ii), changes to any claims effected by the accompanying paper are indicated below.

Claim 53 has been cancelled.

Claims 15, 23, 39 and 52 have been amended as follows:

15. (Thrice Amended) A method, including steps of:

receiving a set of network objects in response to a first request to a server from a client; and

maintaining said network objects in a cache memory in a cache engine, said cache engine connected via a network to the server and the client, said cache memory including mass storage;

wherein said step of maintaining includes steps of recording said network objects in said cache memory and retrieving said network objects from said cache memory, so as to substantially minimizes a time required for retrieving said [network cache to retrieve a] network objects [object] from said mass storage [cache memory].

23. (Thrice Amended) A method, including steps of:

receiving a set of network objects in response to a first request to a server from a client; and

maintaining said network objects in a cache memory in a cache engine, said cache engine connected via a network to the server and the client, said cache memory including mass storage;

wherein said step of maintaining includes steps of optimizing when and where said network objects are written on [in] said mass storage [(a) spatial locality of storage of network objects within said mass storage, and (b) temporal locality of retrieval of] so as to minimize a time required for retrieving said network objects from said mass storage.

39. (Thrice Amended) A method, including steps of:

receiving a set of network objects in response to a first request to a server from a client; and

maintaining said network objects in a cache memory in a cache engine, said cache engine connected via a network to the server and the client, said cache memory including mass storage;

wherein said step of maintaining includes steps of recording said network objects in said cache memory and retrieving said network objects from said cache memory, so as to perform at least one of:

maximizing [minimizing] a rate at which said network objects can be written to said mass storage,

maximizing a rate at which said network objects can be erased from said mass storage,

maximizing a rate at which said network objects can be retrieved from said mass storage, or

minimizing a time required for retrieving said network objects from said mass storage.

52. (Thrice Amended) A method, including steps of:

receiving a set of network objects in response to a first request to a server from a client; and

maintaining said network objects in a cache memory in a cache engine, said cache engine connected via a network to the server and the client, said cache memory including mass storage;

wherein said mass storage of said cache memory utilizes non-hierarchical storage.